than those of *Cútia :* for, in the former, the anteal digits are freer, and the lateral ones shorter in proportion to the central and to the hind one, than in the latter; whilst the nails have rather less than more of the *Parian* attributes. Lastly, the pointed and burnished feathers on the head of *Lamprotornis Spilopterus* are wholly wanting in our bird. In *Spilopterus* they seem to intimate relationship with the *Stares*. Nor is the intimation unrequired by those who claim such fellowship for this bird, in as much as its habits and essential structure savour more contrast than similitude with the *Sturnidæ*.

As for our *Cútia*, amidst all its anomalies (so to speak, with reference to one's own ignorance) of structure, there is certainly something *Sturnine* in its aspect; and by certain peculiarities of its feet and wings, as well as by its variegated plumage, it bears some resemblance to *Sturnella*, a genus "leading directly to the true *Starlings*."

Species new. *C. Nipalensis*, nobis; Nipalese *Cútia*, nobis. Habitat, central and northern regions; adheres to the forests, feeding on hard insects and on seeds. Gregarious and arboreal.

Color and size. Male, above, brilliant rusty yellow, with jet-black remiges and rectrices. Cap, and a large apert central portion of the wings slaty; the former confined all round, by a black band proceeding through the eyes from the nares. Below, from chin to legs, pure white; from legs inclusively to tail-coverts, flavescent: the flanks broadly cross-barred with black: a spot of the same hue at the base of the maxilla: most at the alar quills and the lateral tail feathers, tipped with white: lining of wings, and wings internally and basally, albescent: bill, above blackish, below plumbeous: legs orange yellow: iris, brown: 7 to $7\frac{1}{2}$ inches long by $10\frac{1}{2}$ to 11 wide: bill $\frac{14}{16}$: tarsus $1\frac{3}{16}$: central toe $\frac{11}{16}$, hind $\frac{9}{16}$. The female is a trifle less in size. Her mantle is variegated by longitudinal black drops: and her cheek band is brown instead of black, especially on the ears.

VII.—*Nest of the Bengal Vulture, (Vultur Bengalensis;) with observations on the power of scent ascribed to the Vulture tribe. By Lieutenant* J. Hutton.

On the 8th December, 1833, I found four vultures' nests in a large *barkat* tree, near the village of *Futtehgurh*, on the road from *Neemuch* to *Mhow*. These nests were of great thickness, and were constructed of small branches and twigs, mixed with dead leaves; three of them contained each one egg, of a large size, and quite white. The fourth nest was occupied by a solitary young one, just hatched, and

thinly clad, or rather sprinkled over with a short down of an ashy color. Near this tree were two others, on each of which were three or four similar nests, but as they were difficult of access, I did not ascertain their contents.

Deeming the little one too young to take from the nest, I ordered my servant, who had climbed the tree, to leave it there, intending to take it, if not flown, on my return from *Mhow*, whither I was then proceeding. On the 21st of the same month I returned to the spot, and finding the bird still in the nest, made a prize of it and bore it away to my tent. The old vultures offered not the slightest resistance, but sat stupidly watching the robbery we were committing.

On offering the young vulture raw meat, it fed greedily, and gave me reason to believe that it would be no difficult task to rear it, since it proved willing enough to feed.

I was much astonished to see the little progress it had made in growth and plumage, since I discovered it, a period of thirteen days, in which time most of the smaller birds would have been nearly ready to leave the nest; whilst my gluttonous friend had not even the smallest symptom of a feather. The whole bird was clothed with a light cinereous down, except on the neck, where it was partly bare, being in patches. The lore and round the eyes naked and livid; the eyes small and irides dark; cere and beak, black; legs and feet leaden black; claws black. It had no power to stand on its legs, owing to the great weight of the body.

After feeding, or when hungry, it emitted a fractious peevish cry, like a sleepy child.

I placed it in a basket with some straw to keep it warm, and thus took it to *Neemuch*.

When about three weeks old, the pale cinereous down with which it had at first been clothed, gave place to a down of a much darker color, the head alone retaining its first clothing. At a month old, or rather thirty-three days from the time I first discovered it, the prime and secondary quills, greater wing coverts, scapulars, tail feathers, and a few feathers on the upper part of the back near the neck, made their appearance, but their growth was extremely slow, being very little advanced four or five days after. The bird was still unable to stand, for, although his strength had increased, the weight and increase of bulk of the body still rendered his legs of no use. Once or twice on placing him on the ground, he swallowed several large stones, about the size of a sparrow's egg, and these I found voided three days afterwards in the basket which served him for a nest. In a week's time the prime

quills grew to an inch and a half long. The size of the body increased rapidly, and the bird supported itself on the knee joints, but could not yet stand at forty days old.

Its appetite became now no easy matter to satisfy, a pound of flesh at a meal being thought nothing of. At six weeks old the ruff round the neck was clearly discernible, and the quills of the wings were about three inches long. The top and hind part of the head began also to lose the soft thick down which had hitherto clothed it, and presented a naked bluish skin.

On the 20th January it stood upright for the first time, being about forty-three or forty-four days old.

At two months old, the back, shoulders, wings, lower part of the neck above, rump and tail were clothed with dark brown feathers, approaching to black; the thighs were still only clothed with down, as also the sides and belly. The ruff was thickly formed and composed of very narrow brown feathers; the breast partly clothed with narrow pendant feathers of a lighter brown and with the shaft whitish. Head closely covered with a fine soft woolly down of an ashy whiteness, which had again sprung up. Crop covered with pale brownish down. Legs greyish lead color.

It was now so tame, as to become a perfect nuisance; for no sooner did it see any person, than it ran towards them screaming and flapping its long wings, with the head bent low, and neck drawn in towards the body, often pecking at the feet of the person thus intercepted. Many were the thumps and kicks the luckless bird received from the servants, who most cordially detested him, as their bare feet were often assailed and cut with the sharp blows of his curved beak. Still, through good and evil, he remained with us, roosting at night sometimes on the top of my bungalow, and at other times wandering to some of the neighbors. Often did I wish that he would take unto himself the wings of the morn and flee away; for he never entered the house without making it so offensive as to be scarcely bearable. Yet, having brought the evil upon myself, I was bound to bear it with patience, and at length when I almost began to despair of ever getting rid of him, he deserted his usual haunts on the 10th May, being then five months old, and, I am happy to say, I saw him no more.

I once shot a pair of adult birds, male and female, which were sitting with many others of the same kind, seemingly half gorged, over the carcass of a dead cow;—the ball passed through the head of the female, into the neck of the male, and thus afforded me a good opportunity of examining them together.

The plumage of the male is dark brown above, deepest on the wings and tail; under parts of a lighter shade of brown, the shaft and middle of each feather being dashed with a dirty white, or buff colored streak;—head and neck of a dirty livid color, and destitute of feathers, but scattered over with short hairs; at the bottom of the neck a ruff of long, narrow and pointed feathers; the crop covered over with short brown feathers, and slightly overhanging the breast. Bill strong and black at the end, but paler at the base; nostrils lateral; irides dark hazel; legs thick and blackish; claws black and strong and not much hooked.

Length 2 feet $7\frac{1}{2}$ inches; breadth 7 feet $5\frac{1}{2}$ inches.

The female in length was 3 feet 1 inch, and in breadth 7 feet $7\frac{1}{2}$ inches;—the plumage above is much lighter, being of a buff or pale fawn-colored brown; under parts of a dirty white; irides dark hazel; bill strong and dark at the end, but of a greenish livid color at the base;—the claws are longer and more hooked than in the male.

The native name is *Giddh*.

This is the Bengal Vulture (*Vultur Bengalensis*) of authors;—it is gregarious to the full extent of the word, not only flying and feeding in flocks, but also building its nests in company.

The male bird above described, rather exceeds the size given by Latham and Colonel Sykes.

In Loudon's Magazine of Natural History is a long dispute between Mr. Waterton, the author of "Wanderings in South America," and Audubon, the American Ornithologist, respecting the remarkable powers of smell so long ascribed to the Vulture tribe. The latter gentleman, backed by several friends, maintains that sight alone conducts the Vulture to his prey, and he relates a number of experiments which he tried in *America* relative to this subject. Mr. Waterton, on the other hand, ridicules these experiments, and brings forward much to invalidate them, and in favor of the old notion. It had perhaps, however, been better if these gentlemen had borne in mind the saying "medio tutissimus ibis," and allowed due weight to both these senses combined.

The view which either party takes of the subject, will be gathered best from Mr. Waterton's own words, which I transcribe from the 39th No. of the Magazine:—

"The American philosophers have signed a solemn certificate that they feel assured that the two species of vultures which inhabit the United States, are guided to their food altogether through their sense of sight and not that of smell:—I, (Waterton) on the contrary, say

that all vultures can find their food through the medium of their olfactory nerves, though it be imperceptible to the eye."

This is said with reference to an article in No. 38 of the same Magazine, signed by several scientific men in *America*, stating it to be their opinion, "that they (the vultures) devour fresh as well as putrid food of any kind, and that they are guided to their food altogether through their sense of sight and not that of smell."

On this subject it appears to me that the parties, like the disputants in the fable of the Chamelion, "both are right and both are wrong," as I think may be shewn from the arguments on either side, and also from an experiment I made myself at *Neemuch*. Mr. Waterton affirms that the vultures of the United States never feed on other than putrid carcasses, while his opponents declare that they feed alike on fresh and putrid substances.

Our Indian Vultures decidedly feed as readily on a recently deceased animal, as on a putrifying one, and I have repeatedly seen flocks of the Bengal vultures at *Neemuch* squabbling over the carcass of a camel or an ox, which had not been dead more than a few hours, and which was as yet perfectly fresh.

Sight alone in these cases guided them to their prey. The young bird above described was always fed with fresh raw meat.

This does not, however, by any means prove that the vulture is deficient in the powers of smelling carrion. The effluvium from any decomposing body, being, as Mr. Waterton observes, lighter than common air, naturally rises on high, and a flock of vultures soaring above, and coming in contact with a tainted current, receive warning that a banquet awaits them on earth, causing them to search about in every direction for the desired object, in the same manner as a dog would do.

It often happens that an animal dies in some thick covert where the vultures cannot discover it, until the vapour arising from the decomposing body warns them that food is near, and excites them to a closer search. Thus, having caught the tainted current of air, the bird wheels round and round in decreasing circles as the scent grows stronger, until at length it alights on some tall tree near the spot, or perhaps on the ground, casting its piercing glances on all sides, in the hope of discovering the savoury morsel, which, if perceived, is instantly attacked "tooth and nail."

It may very possibly happen, however, that the vulture after having followed the attractive odour to the regions of earth, may yet be unable to discover the object from which it proceeds, and after having in vain endeavoured to bless his longing sight, and still more longing

appetite with the rich and tantalizing morsel, be compelled reluctantly to quit the perfumed spot.

Thus the faculties of sight and scent are both necessary to enable the vulture to discover its prey,—sometimes singly, as when it is fresh,—sometimes combined, as when it is decayed and hidden.

Thus I should pronounce the power of scent in these birds, although strongly developed, to be in aid of sight, and it may be deemed a secondary and auxiliary means of discovering food.

The following experiment I tried at *Neemuch*. A recently killed dog was encased in a coarse canvas bag, and hung up in a large *barkat* tree, so that no bird soaring above could possibly see it. On the morning after, I went to reconnoitre, and saw a number of vultures sitting on the upper branches of the tree, and on some of the neighboring ones, of which there might be about a dozen. These birds were not, however, attracted to the spot by any effluvium from the dog, as it was still quite fresh,—but they had resorted there to roost the evening before, and had not as yet aroused themselves from their lethargy.

On the fourth day I again repaired to the spot and found about twenty vultures sitting on the tree, all of them being on that side, directly over the body of the dog, which had now become very offensive ;—there were also several vultures soaring aloft in wide circles above the tree, one of them every now and then descending and alighting. Not one bird was to be seen on any of the neighboring trees,—nor on any part of the chosen tree, excepting that immediately over the carcass. That these birds were not roosting, is proved from the hour of the day being eleven ;—and besides on the morning that I saw them at roost, they were scattered over the whole top of the tree, which is an enormous *barkat* or *banyan* tree,—as well as on some of the adjoining ones, while on this forenoon they were confined to the tree, and also the one portion of the tree in which the putrid carcass of the dog was concealed.

I therefore conjecture that the smell of the decomposing body had mounted on high, and the vultures wheeling above had come in contact with the savoury vapour, soaring round in wide circles in hope of espying the object from which the scent that told of prey proceeded.

Seeing nothing below, but still smelling the putrid carcass, they had gradually narrowed their flight, until they alighted on the identical tree in which lay the hidden banquet. Thus I conclude that the powers of scent in these birds has been ascribed to them, in truth, and that it is this faculty which gives them *notice* of the prey awaiting them and induces them to search with keen and eager glances over

the earth, until the *eye* rests on the precise spot. It is therefore their acute faculty of scent, combined with their keenness of vision, which directs the vulture tribe to their prey.

Thus I think I have shewn that the three points in dispute, respecting the vultures of the United States are not applicable either to the Indian or Bengal vultures*, both of which are gregarious, both feed on fresh as well as putrid substances, and both discover their prey by the *combined* faculties of scent and sight.

VIII.—*Notes taken at the post-mortem examination of a Musk Deer. By* A. Campbell, *Esq., Nipál Residency, June* 24, 1834.

[Addressed to J. T. Pearson, Esq., Curator, Asiatic Society.]

I have the pleasure to send you, for the museum of the Asiatic Society, a very perfect skin (head and feet included) of the Thibetan Musk Deer, as well as of the *Wah* of the Bhotiahs, *Ailurus Fulgens* of the zoologists, and hope they may reach you in the same perfect state they are now in. The musk has been a full grown male, and a large one too. The natives of *Nipál* make a marked distinction between the *Trans-Himálayan* animal, and the *Cacharya* one, or that which inhabits the country along the foot of the snows on this side of the great snowy mountains; ranking the musk of the former much higher than that of the latter variety. The specimen now sent is of the *Trans-Himálayan* animal. The notes appended are of the *Cis-Himálayan* one. Through the kindness of Mr. Hodgson, I have had opportunities of examining specimens of both animals, but without observing any important difference between them. The musk pod of the Thibetan animal is covered with short close hair, while that of the *Cachar* one is clothed with very long hair, and hangs more loosely from the belly. I believe the musk of both, when unadulterated, to be much alike, and that the superficial value attached to the Thibetan animals' produce, arises from the circumstance of its being less frequently impregnated with foreign substances, for the purpose of increasing its weight and bulk, than the *Cachar* article. The pods, as they are found in the market, whether *Thibetan* or *Cacharya*, vary a good deal in appearance, and hence the general division of them above noted is subdivided: the thinner skinned ones being called *Kághazí*, or papery, the thicker skinned ones *Ganauta*.

* Indian Vulture, *Vultur Indicus*.—Bengal Vulture, *Vultur Bengalensis*. Of the habits of the Pondicherry Vulture (*V. Ponticerianus*) I know little. They are generally seen singly or in pairs,—never I believe in flocks. (?) Do *they* in the East, hold the place and habits of the king of the Vultures of the West?